

Notice of Allowability

Application No.

09/977,304

Examiner

Matthew J. Sked

Applicant(s)

EISELE, ANDREAS

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/14/05.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Response to Amendment

1. The rejection of claims 9, 11 and 24 under 35 USC 112 is withdrawn in view of the amendments filed 11/14/05.
2. Applicant's arguments, in view of the amendments filed 11/14/05, with respect to claims 1 and 25 have been fully considered and are persuasive. The rejection of claims 1-26 has been withdrawn.
3. Claim 27 has been newly added.

Allowable Subject Matter

4. Claims 1-3, 5-8, 10, and 12-27 are allowed.
5. The following is an examiner's statement of reasons for allowance: Claims 1 and 25 teach a method of encoding linguistic frequency data comprising: mapping a character string found in a source text to a numeric identifier, identifying multiple character strings as a set forming an n-gram, obtaining frequency data for each set in the source text, creating memory arrays for the frequency data, pointers and indexing offsets, assigning a memory position in the frequency data memory array to a first character string of one of the sets and store at this position the calculated frequency data, grouping the frequencies relating to n-grams that have the same first character string into a block with the frequency data memory array, assigning a memory position in the pointer memory array to a second string of the set and storing at this position a pointer pointing to the memory position of the frequency corresponding to the first

character string in the frequency data memory array, grouping the pointers that have the same second character string together in a block within the pointer memory array, storing an offset position for each first character string in the indexing offset array that indexes the frequency data corresponding to the first character string in the frequency data memory array and storing an offset position for an *i*th character string in the indexing offset array that indexes the corresponding block in the pointer array relating to the *i*th character string.

Morimoto (U.S. Pat. 6,789,057) teaches a method and system for encoding linguistic frequency data, the method comprising:

identifying a plurality of sets of character strings in a source text, each set comprising at least a first and a second character string (the dictionary entry which is found from the text and the word before it are stored as bigrams, col. 11, lines 46-48);

for each set, obtaining frequency data indicative of the frequency of the respective set in the source text (bigram table stores all the bigrams with frequencies, col. 11, lines 49-50);

for each character string that is a first character string in at least one of the sets, assigning a memory position in a first memory array to the respective character string and storing at said memory position the frequency data of each set comprising the respective character string as first character string (second word of bigram stores with it the frequency of the bigram, col. 11, lines 46-60 and Fig. 13); and

for each character string that is a second character string in at least one of the sets, assigning a memory position in a second memory array to the respective character

string and storing at said memory position, for each set comprising the respective character string as second character string, a pointer pointing to a memory position in the first memory array assigned to the corresponding first character string of the respective set and having stored the frequency data of the respective set (first word of the bigram contains a pointer pointing to the array containing the second word and the frequency data, col. 11, lines 46-60 and Fig. 13).

Kanevsky et al. (U.S. Pat. 6,092,038) teaches a method of encoding linguistic frequency data that maps character strings to numeric identifiers, stores multiple strings of characters from a training text in structures that contain pointers that reference the n-gram words and also stores frequency and offset information corresponding to each n-gram (col. 5, line 35 to col. 7, line 9).

None of the prior art on record teaches grouping the frequencies relating to n-grams that have the same first character string into a block with the frequency data memory array, grouping the pointers that have the same second character string together in a block within the pointer memory array, storing an offset position for each first character string in the indexing offset array that indexes the frequency data corresponding to the first character string in the frequency data memory array and storing an offset position for an ith character string in the indexing offset array that indexes the corresponding block in the pointer array relating to the ith character string. It would not have been obvious to one of ordinary skill in the art at the time of invention to modify the prior art on record to arrive at the Applicant's invention.

As per claim 27, Morimoto does not teach extending the n-gram storage method to n-grams larger than bigrams and referencing the character strings as recited in the claim. It would not have been obvious to one of ordinary skill in the art at the time of invention to arrive at this invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ryzchachkin et al. (U.S. Pat Pub. 2005/0055199A1), filed three days after the current application, teaches storing n-grams with the first character string storing the frequency data, with pointers from the second and third character strings referencing each other and the first character string. Offsets are also stored. Rangarajan et al. (U.S. Pat. 5,706,365) teaches an alternate method for the storage and retrieval of n-grams.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Sked whose telephone number is (571) 272-7627. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WAYNE YOUNG
SUPERVISORY PATENT EXAMINER

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01/17/05